Issue 54
February 2024

Utah Valley Amateur Radio Club

The UVARC Shack

What's in *your* emergency wallet?

Prospective ham Cindy Lee Muir and husband Lawrence Muir KJ7GRG show their prize at the January 2024 club meeting. While county Emergency Coordinator Caryn Alarcon KG7UUR and Taylor Foote KI7SHU taught a large crowd about proper emergency protocol, Gavin Grow K9GKG handed out prizes, including decals that display the Utah County go-to emergency repeater frequency. More photos on page 14 of participants at our first meeting of the year.

In this issue of the *UVARC Shack*

Our annual Christmas Potluck, plus the January meeting by KG7UUR.

My Shack spotlights N7RTB and WJØANN. *Amateurs in Action* on Mt. Flora. *Brass Tacks* on single sideband.

Dear Annette on why antenna height is important, and missing power output on SSB. *Hot Tips* for operating in the rain. *DIY* for your SOTA antenna. *The Amateur in You* on being only a mere Technician and numerical signal reports.

Please send your ideas, stories, questions, gripes, and photos to ***uvarcshack@gmail.com***

Inside this issue

Other points of interest

Club meetings

Recap

December 2023 club "meeting" – Annual Christmas Potluck

More than a hundred showed up for our annual Christmas Potluck dinner. Thanks to Michele Costello KI7HBP for putting all the pieces together for a wonderful event. We're very grateful to her husband Joe Costello WH6QV for the photographs. A big shout out to Santa KF7HST for attending the celebration and making everybody smile. Tremendous thanks to Heath Stevenson KK7KOU for arranging the facility for us. Finally, a huge thanks to all of you who were able to make it! And we truly missed the ones who couldn't.

January 2024 club meeting – Emergency Protocol

Utah County Emergency Coordinator and UVARC Secretary Caryn Alarcon gave us our first 2024 presentation on her expertise. In front of a packed crowd, she shared the proper emergency protocol to follow, including go-to frequencies, during a widespread disaster. The PPT of the presentation can be found here and the video here, thanks to Trevor Holyoak AG7GX.

By the way, many of our past meetings are recorded and posted on the club YouTube channel.

My Shack

Highlighting the shack (ham equipment and room) of a member, to give others an idea of the possibilities that might work for them

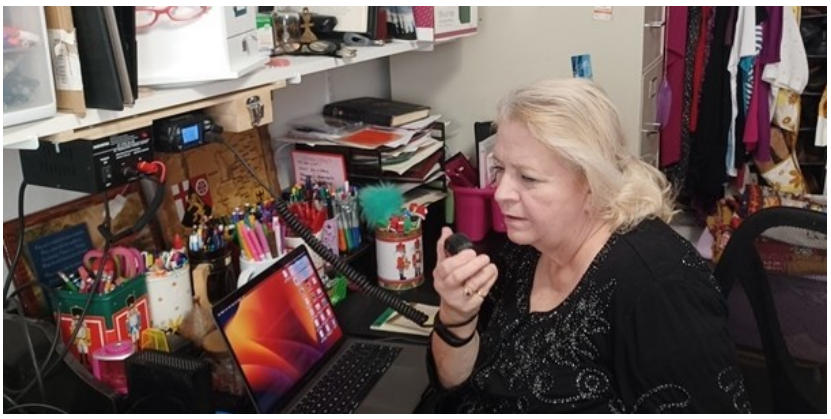
Cliff Sadler, N7RTB

JoAnn Sadler, WJØANN

Having had a start in CB radio, Cliff used it with friends as a young lad in Montana. Life took him into the Air Force Reserves, then the Air National Guard, where he learned electronics, which provided his technical foundation for later. But Cliff didn't get involved with ham radio until he met his sweetheart.

JoAnn has two brothers who were into ham radio, and they sparked her curiosity. She remembers watching her brothers tear apart radios when they were younger, and was fascinated right along with them. But it wasn't until she and Cliff married, and were introduced to Rick Sudweeks AJ7K, and took his class, that Cliff got licensed, and JoAnn followed soon after.

His:	***Hers:***
Kenwood TS-850S HF transceiver	QYT KT-8900D VHF/UHF mobile transceiver
Icom IC-7000 HF transceiver	Baofeng UV-5R VHF/UHF HT
LDG Z-100A autotuner	Diamond D130J VHF/UHF discone antenna
Icom ID-5100A VHF/UHF mobile transceiver	
Baofeng UV-5R VHF/UHF HT	
Diamond X50A VHF/UHF antenna	
Xiegu G90 HF transceiver	



JoAnn was further inspired by hearing Venus KB7FXB on the nets. She said she would love to get into POTA some day, after she upgrades to General, and even get into Morse code. She actually started learning "code" as a teenager, but an LDS mission to Germany put a halt to that.

Today, JoAnn loves to check

My Shack

continued

into the Ladies' Net and the Family History Net. In fact, she's into ham radio more for the social aspect, not so much for technical reasons. Both Cliff and Jo-Ann are regular check-ins on the 76ers Net on Wednesday nights, and you might even see them at a Lunch Bunch or at one of our potluck dinners.

- 73, Cliff and JoAnn

His shack

Her mobile setup

His and hers antennas

Amateurs in Action

Recounts of ham radio operators who have used their time and skills to help others in a time of need

In trouble on Mt. Flora

Brad Byland WA6MM is an avid SOTA (Summits On The Air) activator, as you can tell by his long rap sheet he's posted on his QRZ page. On 17 May 2015, Brad was preparing to climb Colorado's Mt. Flora, which would have been his 29th SOTA activation, by studying maps, reports, and the weather. When he embarked on the hike, Brad made sure he had his essentials, which included his iPhone, a compass, and an HT (handheld ham radio transceiver).

Brad in a selfie on the ledge

Things went smoothly until about 12,700 feet, when deteriorating visibility convinced Brad to turn back. Soon, he was in total whiteout, lost any perception of direction and elevation, and couldn't read his iPhone or compass. He started following the basic heading on the ridge, when suddenly he felt like he was floating. Turned out Brad was falling, and he landed on a ledge some twenty feet down. To his surprise, he had suffered no injuries.

At first, Brad wanted to wait out the storm, but he knew that if he needed help, the Alpine SAR (search-and-rescue) team would need the time to gear up, so he thought about doing a self-rescue. Stopping to consider that plan a little more clearly, Brad knew that was also not a wise option. But, then he remembered his HT, into which he had previously programmed several nearby mountain repeaters. Brad called out for help on the repeater system.

Almost right away, Mike Doe KCØCNT answered the call, alerted 911, and soon began relaying location and health information to Alpine SAR. More than five hours later, Brad was rescued from the ledge by Alpine SAR, and was safe and in good spirits. *Words alone cannot express my feelings of gratitude for the work you do and the countless hours you invest in this service*, Brad said. *My donations are forthcoming!* He also expressed gratitude to Mike and the other hams who picked up the distress call in the first place. *The outcome would have certainly been different without their help.*

The Alpine Rescue Team

By the way, three weeks later, Brad tried again, and successfully summited and activated Mt. Flora. You can read more about Brad's harrowing adventure on the *Sky-Hi News* and ARRL.

Annual Christmas Potluck

In photos

Annual Christmas Potluck

In photos

Annual Christmas Potluck

In photos

Annual Christmas Potluck

In photos

New Hams and Upgrades

New hams

KK7PSJ = Tyler Arbuckle
KK7PTR = Carson Nielsen
KK7PUP = Seth Hanks
KK7PVX = Morly Jessop
KK7PYN = Savannah Walker
AI7UV = Charles Silva
KK7QAS = Joshua Peterson
KK7QAW = Kurt Walker
KK7QBH = Chad Farley
KK7QBI = Nancy Perl
KK7QDT = Colby Robbins
KK7QDY = Nicholas Baldwin
KK7QEU = Michael Dorrough
KK7QFJ = Haydn Carlstrom
KK7QHC = Wade Palmer
KK7QHQ = Brandon Elder
KK7QJQ = Keller Clark
KK7QJW = Bruce Light
KK7QMU = Holly Draper
KK7QOL = Kamron Grubaugh
KK7QON = Joe Devereaux
KK7QOS = Trevor Hyer
KK7QOT = David Pack
KK7QPP = Ryan Bryce
KK7QPW = Zachary Larsen

Upgraded hams

KK7OHV = Zachary Wells (General)
AF7HJ = James Ornellas (Extra)
AI7VK = Michael Dorrough (Extra)
KK7MNM = Jaxon Valerio (General)
KK7MNN = Nickie Valerio (General)
KI7QCF = Forrest Stephenson (General)
KJ4HGM = Casey Richins (General)

Congratulations to all these diligent folks! We look forward to hearing you on the radio soon.

Events

Upcoming happenings

Winter Field Day

The publication of this newsletter issue closely coincides with our 2024 Winter Field Day, so we won't have photos, results, or other follow-up information until the next issue. Let this be a reminder, therefore, that the Utah Valley Amateur Radio Club is planning to participate in Winter Field Day 2024 at the Lindon Marina once again, and all are invited.

We'll be setting up our three stations as early as Friday January 26, but we'll actually be on the air, calling ***CQ Field Day!*** from noon Saturday January 27 through noon Sunday. We'll need help setting up antennas, radios, and other parts of our gear starting early Saturday morning. Afterwards Sunday right at noon, we'll need help taking it all down too. Please bring gloves.

The club will provide dinner in the form of pizza and soft drinks between 5 pm and 6 pm Saturday January 27 inside or next to one of the RVs. All hams and their families are welcome to join the fun! This might be your opportunity to get on the air and make your first HF contact, *even if you have no license*. This is the link to the location. And this is the link to our Winter Field Day information page. Our exchange will be 3M UT.

76ers Annual Barbecue

Lynn Hancock K7LSH and Carl Pockrus WE7OMG have once again secured the pavilion at Highland Glen Park for our annual barbecue, this year on Saturday June 1, from 10 am to 3 pm.

If all goes as planned, we'll have an HF station set up for you to get on the air, and a door prize drawing. If you'd like to contribute toward the food or door prizes, please get hold of Carl or Jeremy Giovannoni K7TEH. The address is 4800 Knight Ave, Highland.

We'll keep you updated during the nets and on Facebook, as we get closer.

Summer Field Day

Is it too early to give everybody a heads up for Field Day 2024? Noon Saturday June 22 through noon Sunday June 23. Like last year, we'll be up Trout Creek, about a quarter of a mile north off Highway 40, at an open location. Our Potluck will be that Saturday afternoon the 22nd.

We'll be asking for help from generous club members, to provide three RVs, in which we can establish our three stations, and nearby antennas. And of course, we'll need help taking it all down too. We also need three volunteers with the ability to tow the communication trailer, the club trailer, and the port-a-potty trailer. More details as we get closer.

Ham Radio Fair 2024

Our annual Ham Radio Fair will be held 6:00 pm on Thursday 18 July 2023, in the large pavilion at Pheasant Brook Park, 400 N 800 W in Lindon. Families, friends, friends of your family, are welcome to check out the stuff, the stations, and the fun of amateur.

See how others set up an actual VHF or portable HF station, go-kit, and their antennas. See how to set up a solar solution, a digital station, how to program an HT, and what the possibilities are. And we'd love to have you volunteer your own setup or expertise!

Events

Upcoming happenings

Utah Valley Amateur Radio Club
Since Feb. 2016

Utah DCC
Utah Digital Communications Conference

Program Announced - February 3, 2024

The annual Utah Digital Communications Conference welcomes hams of all ages and experience levels. It offers a valuable opportunity to learn from experts and connect with fellow amateur radio operators who share your interests. Join us this year to gain insights from our exceptional presenters and get hands-on experience with amateur radio applications at our demonstration tables. To reserve your seat, please register today using the link below.

Main Presentations

The future of National Traffic System Digital
A Multimode Reflector for D-STAR, DMR, P25, Fusion, YSF

Breakout Sessions

Basic Antenna Modeling
Advanced Antenna Modeling
Remote Station Set-Up and Operation
D-Star via Satellite
Getting Started with DMR
Intro to D-STAR
Intermountain Intertie presentation
Direction Finding for All Ages
Decibels -- What They Are, What Do They Mean, and How Are They Used in Amateur Radio

Register early to be eligible for door prizes. Registration and schedule information can be found at **Utah-DCC.org** For questions contact **utahdcc@gmail.com**.

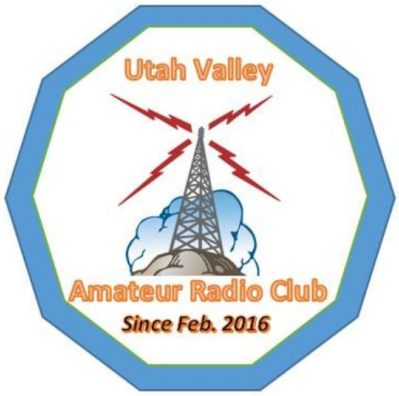
Demonstration Tables

Are you working on a project, have something to share, or would like to promote your club? Email **utahdcc@gmail.com** to reserve a free table. (Tables are limited, and no sales are allowed)

Register Here

Events

Upcoming happenings



January 2024 Club Meeting

In photos

Brass Tacks

An in-depth look at a radio-related topic

Single sideband

You likely got your start in amateur radio on 2 meters, communicating with other hams through FM repeaters. If you decide to upgrade your license to General, you might discover the world of HF (high frequency), where its voice mode of operation becomes largely ***single sideband***, abbreviated *SSB*. Admittedly, however, Technician licensees can operate SSB on 10-meters, which is part of HF, and any radio amateur can operate SSB on 2 meters. But the larger world of voice communication for those who obtain the General class license and operate HF, is single sideband, the primary mode of operation.

In 1915, John Carson devised single sideband as a means to multiplex several phone calls together onto a single circuit. Right away, the US Navy began experimenting with SSB over radio. SSB required frequency stability and selectivity well beyond the capabilities of most AM receivers, which is why broadcasters have seldom used it. Amateur radio operators began serious experimentation with SSB shortly after World War II, and since 1957, single sideband has become the de facto standard for long-distance voice radio transmissions.

When you first get into HF, you might be surprised to hear that SSB isn't the quiet, clear sound of squelch and carrier squelch that you're used to on 2 meters FM. Because the remote signals you're hearing are often quite weak, if you were to enable the squelch while on HF, that will pretty much disable your audio, rendering the bands very silent. On SSB, you've now entered the world of near-constant atmospheric noise and permanent hiss.

What you're hearing is how radio *really* sounds like. If the other SSB station you're listening to is strong enough, it might be able to penetrate the noise well enough for you to make the contact. You might also be aware that you'll need to select LSB (lower sideband) or USB (upper sideband), depending on which band you're listening to. Fortunately, most of today's transceivers will select the proper sideband for you when you change bands, but you can still manually control that setting.

What SSB is

Besides being another "mode of operation", single sideband is a refinement of AM, or amplitude modulation, in that it requires less power and less bandwidth for a given transmission, and is therefore more efficient. The drawbacks of SSB, however, include somewhat more difficult receiver tuning and device complexity at both ends. Additionally, as was mentioned, its sound does take a little getting used to.

Probably the best way to describe SSB is to discuss techni-

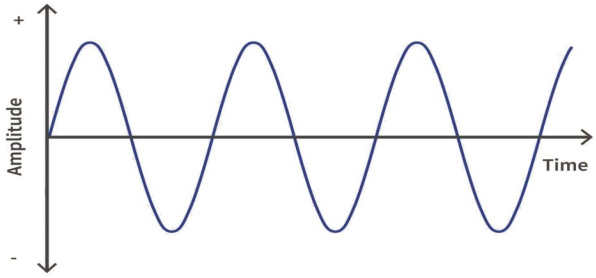
Brass Tacks

continued

cally how it originates, and why we believe it's important to use on some bands and less important on others. It all starts with a simple signal, a sine wave of a selected frequency, known as the ***carrier***:

$$c(t) = A\sin(2\pi f_c t)$$

In this case, **A** is the amplitude (power) of the sine wave and f_c is the carrier frequency. The **t** is time, and tells us that this function is making the amplitude **A** change as time goes by. The resulting signal **c(t)** is pretty boring and might look like this on an oscilloscope:



Now, we mix in the sound of your voice, so that the carrier signal is modified or ***modulated*** by your voice. Instead of looking at every signal your voice is made of, let's consider it one tiny slice at a time, a cosine wave:

$$m(t) = B\cos(2\pi f_m t)$$

B is the amplitude (power, or loudness) of your voice and f_m is the frequency (pitch) of your voice at that instant. And once again, this means the amplitude **B** changes with time. By the way, the cosine function swings both positive and negative, so add a 1 to both sides for the undermodulated case (not derived here) to keep the voice positive, and we have

$$1 + m(t) = 1 + B\cos(2\pi f_m t)$$

Next, let's *mix* the two together, meaning *multiply* them, and call the result **y(t)**:

$$y(t) = c(t)[1 + m(t)] = A\sin(2\pi f_c t)[1 + B\cos(2\pi f_m t)]$$

$$y(t) = A\sin(2\pi f_c t) + A\sin(2\pi f_c t)B\cos(2\pi f_m t)$$

Using the trigonometric identity $\sin x \cos y = \frac{1}{2}[\sin(x + y) + \sin(x - y)]$,

$$y(t) = A\sin(2\pi f_c t) + \tfrac{1}{2}AB\{\sin[2\pi(f_c + f_m)t] + \sin[2\pi(f_c - f_m)t]\}$$

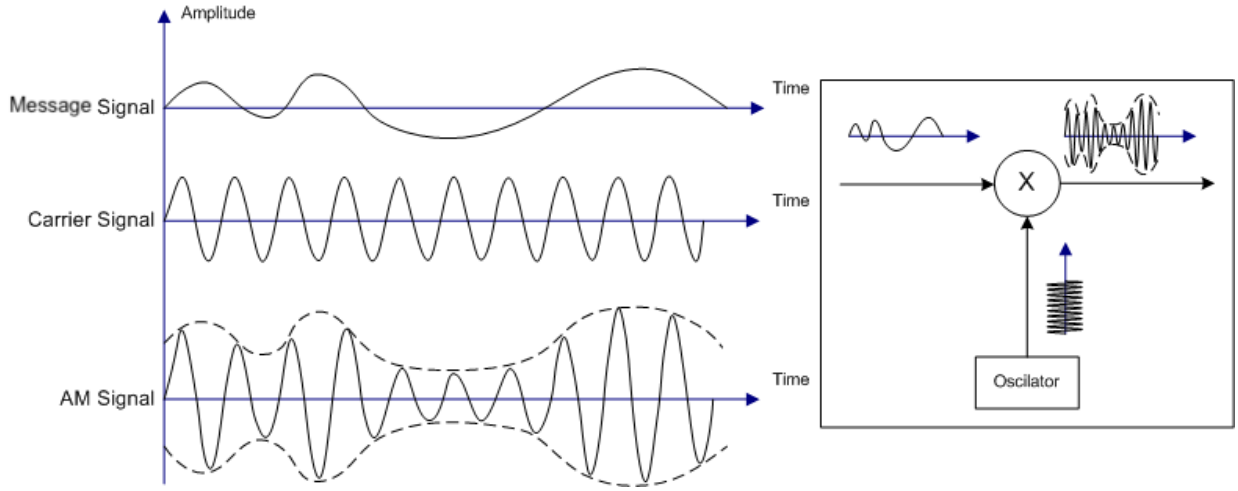
$$y(t) = A\sin(2\pi f_c t) + \tfrac{1}{2}AB\sin[2\pi(f_c + f_m)t] + \tfrac{1}{2}AB\sin[2\pi(f_c - f_m)t]$$

The result is three terms, $A\sin(2\pi f_c t)$, the original carrier signal, and two other terms, one a little above the carrier frequency $(f_c + f_m)$, and the other a little below $(f_c - f_m)$. Together, this is known as ***amplitude modulation***. Each of these two terms a little off the carrier frequency is known as a ***sideband***, the higher one ***upper sideband***, and the lower one ***lower sideband***. When referring to one or the other sideband, we call each ***single sideband***.

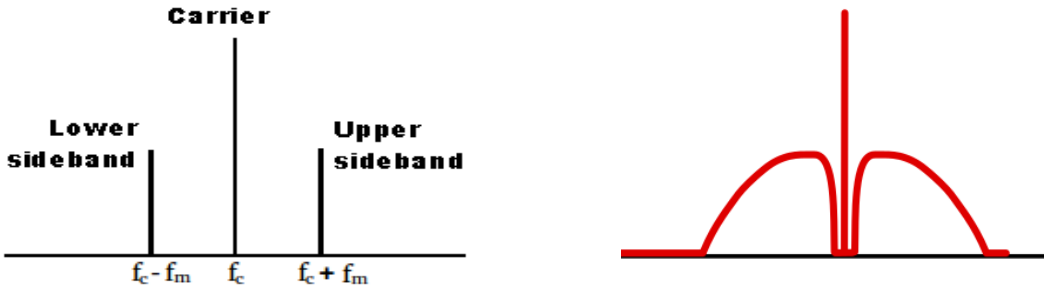
Brass Tacks

continued

Amplitude modulation is also called double sideband because it contains both sidebands. After mixing the two (carrier and voice) signals together, the resulting signal might look like this:



The resulting time-domain signal can be represented in the frequency domain by using a Fast Fourier Transform, resulting in diagrams like these, a snapshot on the left, and real-time on the right, showing the frequency coverage on both sides, maybe during a spoken word:



As you can see from the equation, AM is made from the carrier signal plus two identical (actually, mirror-imaged) signals on either side of the carrier, and the difference between the highest ($f_c + f_m$) and lowest ($f_c - f_m$) signals $(f_c + f_m) - (f_c - f_m) = 2f_m$ is known as the ***bandwidth***. But if both the transmitter and receiver can agree on which frequency the carrier is (the operator "tuned" to it), there is no need to transmit the carrier signal. Furthermore, since the two sidebands are mirror-imaged duplicates, there is also no need to send both of them.

This way, the radio needs only to transmit one of the two sidebands, selected by the operator, and omit the carrier. We say that the carrier signal has been *suppressed*, a function of the *balanced modulator*. It then becomes the responsibility of the receiver to detect the sideband signal, create and add its mirrored image, and re-insert the carrier (done by a BFO, beat frequency oscillator), thus re-creating the original AM signal, which is easily demodulated (decoded).

This is the theory behind single sideband, to reduce the amount of power necessary to transmit the voice, and reduce the amount of bandwidth occupied on the radio spectrum by the en-

Brass Tacks

continued

tire signal. So, when you, the listener, tune to an SSB frequency, you're actually tuning in to a non-existent carrier.

USB or LSB

Which bands require us amateurs to use USB and which require LSB? Well, *require* is a rather strong word in this case, because which bands require which sideband is not truly regulated, but is governed by a *gentleman's agreement*. This means it's permissible to use the opposite sideband from what's conventional on a particular frequency band. In general, here are the agreements for phone (voice) operation:

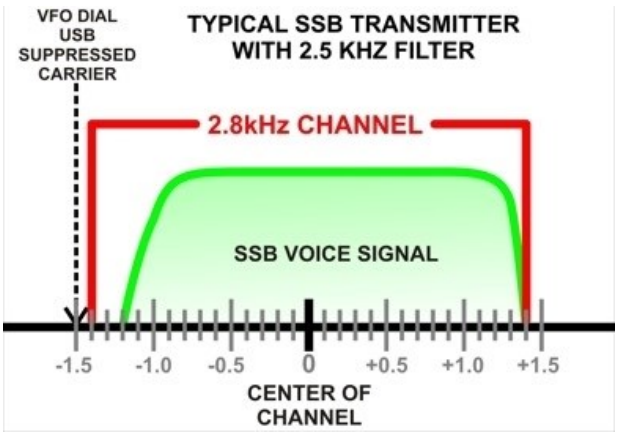
Band	SSB
160 meters 80 meters 40 meters	LSB
All others	USB

Some amateurs like to say that all frequencies below 10 MHz use LSB, but that's not the case. Also, among the exceptions to this is the RTTY digital mode, which uses LSB in the US and USB in the UK, regardless of the frequency. Another is the 60-meter band, for which voice operations must use USB.

By the way, you might have noticed that when discussing voice operation on HF, we haven't discussed FM, which is the primary mode for 2 meters, like many of us are used to. FM is very difficult to operate on HF because of a technical reason (rule Part 97.307.f.1) that severely limits its operation. The technical limitation arises from the large bandwidth (~10 kHz for narrowband and ~15 kHz for wideband) required to support conventional FM to preserve the audio fidelity you're accustomed to. So, you will likely never hear FM on HF frequencies.

Bandwidth

We discussed the fact that an AM signal occupies twice the bandwidth of an SSB signal. We also saw mathematically that an SSB signal has a bandwidth of about $\mathbf{f}_m$, but how much is that in Hz? Since $\mathbf{f}_m$ depends on the frequency of your voice, that'll depend on your pitch. Then again, by convention most transceivers limit the frequency range of the voice actually being transmitted to between 300 Hz and 3 kHz, or 3000 Hz, giving the operator a somewhat boxy sound.



The ideal human ear has a detection range of about 20 Hz to 20 kHz, but human speech falls way short of this range, depending on gender

Brass Tacks

continued

and other factors, such as whether you have a cold. In the world of telephony, the usable voice frequency range is set by agreement through research to about 300 Hz to 3.4 kHz, so most phone equipment is designed for this span.

Amateur radio manufacturers have agreed to further limit single sideband transmissions to 3.0 kHz, to help you, the operator, assure sufficient separation from an adjacent signal if it's 3.0 kHz from your target frequency. And the range is set to 3.0 kHz to support communication, not *fidelity*. Some bands, such as the 60-meter band, further limit that maximum. Some modes, such as CW and FT8, take the limitation even further.

If it hadn't occurred to you already, the lower end of the SSB bandwidth starts at a modulation frequency $\mathbf{f}_m$ at about 300 Hz. This means there is a slight (obviously 300 Hz) gap between the non-existent carrier frequency and the nearest frequency of the sideband signal (lowest pitch of the voice). This gap is not important, but is part of the discussion, because it occupies a portion of the bandwidth.

SSB effects

One thing you might notice when working HF using SSB is that when two stations double (transmit over each other), you can hear them both, which we refer to as a *pileup*. This is because they don't have those carrier signals interfering with ("beating against") each other.

Another thing you might notice is that when you key up without talking on HF using SSB, your output power meter registers nothing, because you're not transmitting a carrier signal. Therefore, if you key up on SSB by accident, but don't say anything, there's no need to announce your call sign, like you'd need to do on 2 meters FM.

A side effect to SSB transmissions is the fact that many new amateur operators believe their antenna to be near-perfect because their SWR meter shows 1.0:1 when they key up. It looks perfect because there's no reflected power, because there's no forward power, because your transceiver never sent your antenna a signal with any power. To measure SWR with your transceiver, you should instead transmit a signal that uses a carrier, such as CW or AM. I recommend you place more faith in your antenna analyzer, however, to provide a more accurate reading.

Finally, the generation of a SSB signal requires sharp cutoff characteristics of the sideband suppression filter in the balanced modulator, which "removes" the carrier and the opposite sideband signals. Also, SSB receivers must be manufactured with more precise tuning than that of AM or FM receivers.

Summary

Single sideband is the primary voice mode of operation that's used on HF, but can also be used on most other bands. It's a refinement of amplitude modulation; that is, it's AM, but without the carrier signal and the opposite sideband. Upper sideband and lower sideband are the names of the two AM sidebands, and different amateur bands use them by convention rather than by rule. The bandwidth of SSB is half that of AM, and is set by convention on HF bands. SSB does have some interesting side-effects, not the least of which is a pileup.

Noji Ratzlaff, KNØJI (kn0ji@arrl.net)

Dear Annette

What's on your mind? Serious, humorous, technical, and thoughtful answers to your deepest, (mostly) ham-related questions.

Dear Annette:

If HF propagation is by refraction off the ionosphere rather than line-of-sight, why is it important to mount an HF antenna high?

Steve in Jackson Hole

Dear Steve:

Your antenna radiates its signal downward as well as upward, and as it does, the signal that gets reflected off the ground is superimposed upon the signal radiating upward, to produce a net effect ("strongest") signal made from a combination of constructive and destructive interference. The elevation ("take-off") angle of that strongest transmitted signal can depend heavily on the height of your antenna, the lower the take-off angle, the farther your strongest signal is transmitted before it reaches the ionosphere, and the so the longer the "hop"

Dear Annette:

A few weeks ago, I was listening to 20 meters and heard somebody say "CQ contest" so I answered and asked his name. He said I should only answer if I was in the contest, and then ignored me. Was that rude of him, or did I do something wrong?

Jimmy in Las Vegas

Dear Jimmy:

Operators who call out "CQ contest" are attempting to attract the attention of only those who intend to participate in their contest. Then, when you answer his call, he needs to patiently and kindly inform you of how it works, if he determines that you do not intend to participate.

Dear Annette:

I just received my Yaesu FT-710 from HRO, hooked it all up to my antenna, and turned it on. But when I tested it by pressing the PTT on 20 meters SSB, there's no power output from the radio. When I changed the mode to FM and keyed up, it puts out a full 100 W, so what setting am I missing on SSB?

Kyle in Orem

Dear Kyle:

While operating on FM, your rig sends a carrier signal when you press the PTT, but on SSB your rig doesn't transmit a carrier signal. So, assuming your microphone gain and related settings are adjusted properly, your rig's output power is related to the strength of your voice going into the microphone. Try it again, this time speaking into the microphone.

Dear Annette:

I've heard many times that CW uses the lowest bandwidth of any mode, and so is more efficient, and can get through the noise better than others. Is that true, even better than FT8?

Adas in Provo

Dear Adas:

CW requires a typical minimum bandwidth of 200 Hz, which is pretty low, while FT8 requires only 50 Hz. CW also consumes more bandwidth as its character rate increases, while the FT8 rate is set per transmission. And as far as "getting through the noise better", that's where the comparison breaks down, because FT8 is a weak-signal decode mode, while CW using Morse code is not. So, FT8 will be decoded by software much more effectively and efficiently than CW decoded by even a computer-based Morse code reader.

Got a question for Dear Annette*? Email it to* ***uvarcshack@gmail.com*** *and include your town name. Sorry, no guarantees.*

The Amateur in You, Part 1

What have you been pondering?

Only a Technician

You might have heard it from somebody announcing their insecurity or apologizing for their shortcoming : ***I'm only a Technician***. So, what are you, as a Technician-class licensee, permitted to do in the world of amateur radio? As it turns out, quite a lot.

Here's a short list of some of the privileges afforded you when you earned your Technician-class license:

- Organize, govern, and operate a net
- Install, own, and operate a repeater
- Install a tower and any kind of antenna
- Communicate on HF
- All VHF, UHF, and GHz bands
- 1500 watts on all VHF and higher bands
- IRLP, EchoLink, APRS, and Winlink
- POTA, SOTA, DXpeditions, SES
- CW, AM, FM, SSB, FT8
- Work any and all digital modes
- Build any and all amateur radio gear
- Talk all over the country and the world
- DX with any legal country
- ARES, RACES, Skywarn, AUXCOMM
- Sporadic-E, meteor scatter, aurora
- Tropospheric scatter, gray-line, skip
- Communicate through any satellite
- Communicate with the ISS
- Earth-Moon-Earth operation

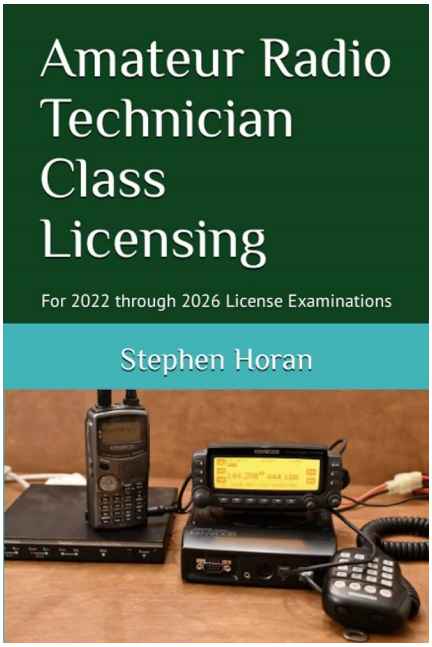
As you can see, there's a lot you can do, and unfortunately many find it surprising. But, it doesn't stop there.

- Set up an emergency radio station
- Hold an SET (simulated emergency training)
- Allow third-party operation
- Teach amateur radio classes
- Initiate and hide a fox hunt transmitter
- Present ham radio topics to the public*
- Relay in behalf of any person
- Represent ham radio to government
- Apply for a vanity call sign
- Start and operate a ham radio club
- Host an amateur radio activity
- Promote ham radio in every way
- Author ham radio articles and publications
- Mentor ("elmer") another ham or friend
- Provide weather and traffic updates*
- Save somebody's life, maybe your own

And on and on. **While you're providing public information updates, be careful to avoid one-way broadcasting and news collection for on-air distribution.*

Finally

There is absolutely no shame in being a Technician-class licensee; you have the world at your fingertips. You have the freedom to upgrade, but if you don't, you can still perform a lifetime of magic on and off the radio. Enjoy the craft, and let others see your enthusiasm!



The Amateur in You, Part 2

What have you been pondering?

Numerical signal reports

When people ask us on the radio for s signal report, it's perfectly acceptable to say that they sound good, clear, loud, or something a little more technically meaningful. In law enforcement or the military, you might hear them say something like "five-five" or "five-by-five". In the world of amateur radio, we like to say "five-nine" for a perfect signal, but what does that mean?

S-meter

The numbers come from the ***RST System*** which stands for "readability, strength, and tone". ***Readability*** means how clearly understandable the sound is being received, and is rated from "one" to "five", with "five" being the clearest. ***Strength*** means how strongly the signal is being received by your radio, and has little to do with how it sounds. It's rated from "one" to "nine", with "nine" being the strongest signal detectable by your radio.

Level	R - Readability	S - Strength	T - Tone (CW only)
1	unreadable	barely perceptible	too rough
2	barely readble	very weak	very harsh
3	readable with difficulty	weak	very rough
4	readable with little difficulty	fair	rough
5	perfectly readable	fairly good	strong ripple
6	N/A	good	definite ripple
7	N/A	moderately strong	trace of ripple
8	N/A	strong	near-perfect tone
9	N/A	very strong	perfect tone

Many hams confuse the ***signal strength*** with ***audio loudness***, and might offer that report as a reflection of how loud it sounds, and because of sheer usage, we take that confusion for granted. ***Tone*** refers to the quality of the Morse code dits and dahs. So, if you're not listening to CW, then you simply omit the tone report, and just use the first two. When you hear somebody say "five-nine", they're reporting the best non-CW signal possible.

Another thing about reports is when giving them to people who are talking through a repeater. The "five" can be legit, but the "nine" is simply the strength of the repeater signal. It's probably more accurate to say, "full quieting into the repeater", which means "I can hear you clearly as it's being received by the repeater".

The readability report can only go from "one" to "five", but the signal strength report can go much higher. Although "nine" is the strongest signal on the RST scale, actual radio signals can be much stronger, and we report them as the number of decibels greater than "nine" or "over nine". If your radio registers a signal ten times the strength of the RST scale, we say it's coming in at ***ten over nine***. If it's a hundred times as strong, we say ***twenty over nine*** and so forth. This, in turn, has forced us to quantify exactly what a "nine" signal strength report means, and today we calibrate our ***S-meters*** at ***6 dB*** per whole graduation. This means a strength report of S8 is 6 dB over, or four times the strength, of an S7 signal, for example.

Hot Tips

Good info for the new ham, and old stuff to refresh your memory

Operating in the rain

If you're ever considering whether you should operate your radio out in the rain, there's only one answer : ***DON'T***. We're not talking about keeping *your radio equipment* dry or safe from the elements, although that's important too. This is about ***you*** and ***lightning safety***.

Whether or not a particular rain storm appears to generate lightning is a moot point, because *every* rain storm can potentially produce lightning. As the saying goes, ***When thunder roars, go indoors***.

While getting inside during a rain storm is not a guaranteed protection against lightning, you stand a much lower chance of being affected by it inside an enclosed shelter.

But, what if...

That being said, there are times when being outside in a rain storm in almost unavoidable. During severe weather or even an earthquake, you could easily be caught outdoors without any shelter, and no place to hide out in. If you happen to be outdoors and away from civilization, your vehicle, while not perfect, might likely be the best place to shelter. So, if you *must* be outdoors during a rain storm, what can you do to protect yourself from lightning?

- Stay away from trees, ponds, lakes, hilltops, and other high places
- Avoid large conductive objects, like chain-linked fences, barbed wire, power lines, towers, and utility poles
- Never lie flat on the ground, because that will turn your small grounded contact area into a much larger one
- If you're out in or on the water, get to shore as quickly as you can
- If you're in a group, split up so that you won't be sharing the lightning strike
- Cliffs and rocky overhangs do not make good shelters from lightning
- Avoid open vehicles, such as motorcycles, bicycles, convertibles, scooters, golf carts, and ATVs
- Avoid open structures, such as gazebos, baseball dugouts, metal sheds, picnic pavilions, carports, and sports arenas; they won't protect you from lightning

If you can hear thunder, you're close enough to be struck by lightning. After hearing it, and you're outside, stop what you're doing and seek shelter in a real building or a hard-topped vehicle. You can learn more about lightning, protection, and even busted myths about lightning at the following pages:

- National Weather Service
- NOAA (National Oceanic and Atmospheric Administration)
- National Park Service
- CDC (Centers for Disease Control)

DIY

Worthwhile projects you can build on your own

20-30-40 end-fed SOTA antenna

Because I like to both hike and radio, I'm a fan of POTA (parks on the air) and SOTA (summits on the air), so I've been looking for a lightweight, portable, and easy-to-mount multi-band QRP antenna. While gathering info for this very *UVARC Shack* issue, I happened upon the story of Brad Bylund WA6MM, who was rescued from an otherwise snowy grave while he was attempting a SOTA activation. I was looking at his QRZ bio, as I usually do for our article subjects, and discovered his plans for a SOTA antenna that works for him, and that seemed to fit my needs.

His design is a cross between a multi-band trap antenna, an end-fed inverted-L antenna, and a sloper. And because it only supports the arguably most popular SOTA bands (40-, 30-, and 20-meters), it's not only much shorter than an 80-meter antenna, but does not require as much height over ground. This antenna does not require a counterpoise or other ground for performance, yet the unun is designed to mitigate the common-mode current it might generate.

The plans calls for an 81:1 unun and two tank circuit traps, so the construction is a little more involved than I would have liked for a simple DIY article. But, hey, that's the adventure, right? For simplicity and to keep this project small and lightweight, I've decided to use sheets of ABS instead of enclosures for the three coil circuits. Let's dig in and see what it's going to take.

Parts list

One toroidal Fair-Rite T50-43 ferrite core

Two toroidal T50-2 powdered iron cores

32 feet 18 AWG speaker wire pair

One 8″ x 12″ x 1/8″ ABS sheet

Ten 18 AWG #8 stud ring terminals

Five #8 screws, wing nuts, washers, lock washers

One dogbone insulator

One rubber washer

One SO-239 bulkhead connector

Three 150 pF 500 V silver mica capacitors

One spool 22 AWG magnet wire

One 19-foot telescoping fiberglass pole

One 18 AWG #4 stud ring terminal

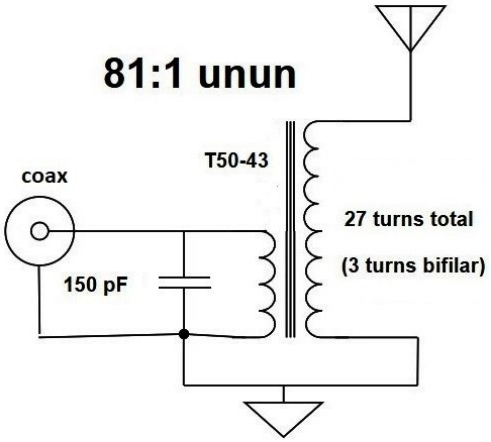
Four each M3 screws, split washers, nuts

Zip ties, heat shrink tubing

One 250-foot roll nylon string

Matching unit "unun" assembly

The diagram to the right shows what we're trying to accomplish with the unun. The purposes of this design are to a) maximize common-mode current reduction, b) minimize losses, while c) maintaining a 50-ohm impedance transformation on the transceiver side of the unun d) for a wide range of frequencies e) on 20 watts of transmit power.



Cut a 2″ × 2½″ piece of the ABS sheet for the unun foundation, where we'll attach the bulkhead connector, the toroidal transformer, the capacitor, and the antenna connection. Drill a 9/16″ hole in the ABS

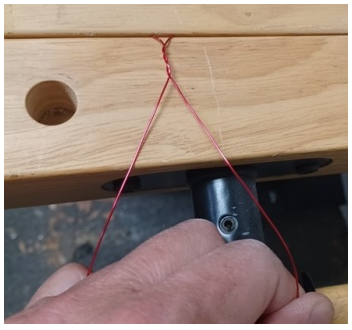
DIY, continued

20-30-40 end-fed SOTA antenna

sheet ½″ from one edge. Place the solder cup end of the SO-239 bulkhead into the 9/16″ hole on the outside of the ABS sheet, and using the four mounting holes of the bulkhead as a template, drill a 1/8″ hole for each mounting hole. Assemble the bulkhead onto the enclosure using the M3-0.5 mm hardware.

The three ABS pieces

Cut the 22 AWG magnet wire into one 7-inch wire and one 41-inch wire. Lay the two wires together in parallel, with one of the ends of one even with one of the ends of the other. While pinching about an inch of the wires in a vise, pull-twist the two wires about 45 degrees from each other *tightly* into a 7-inch-long helix. The number of twists in the helix is not nearly as important as how tightly they're wound together, and so doesn't matter much.



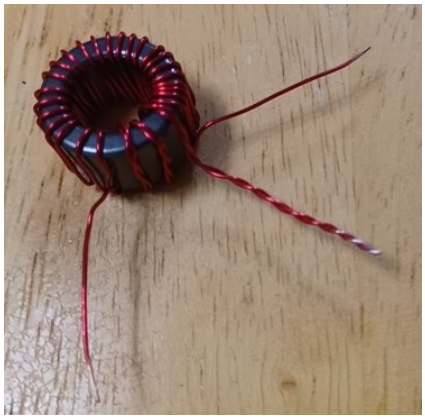
This is known as a *bifilar* ("two-filament") pair. Place the junction of the long and short wires on the side of the toroid, and *tightly* wrap ***three turns*** of the pair over the top and around one toroid arc. Continue wrapping the longer wire *tightly* around the toroid arc for ***26 more turns***, leaving about four inches extra on each end. Use a sanding block (or plain, fine-grit sandpaper) to sand off the insulation of about a half inch off the four magnet wire ends.

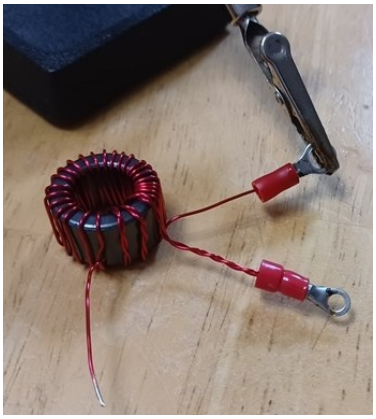
Solder together the twisted bifilar pair end of the magnet wires and one leg of a 150 pF capac-

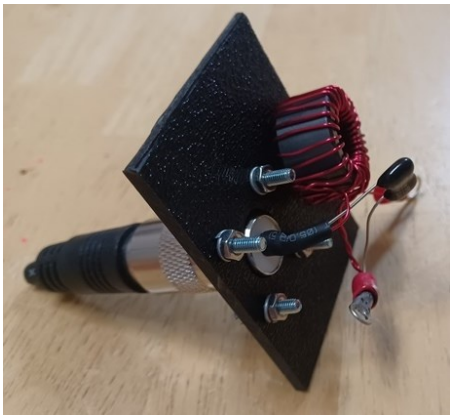
DIY, continued

20-30-40 end-fed SOTA antenna

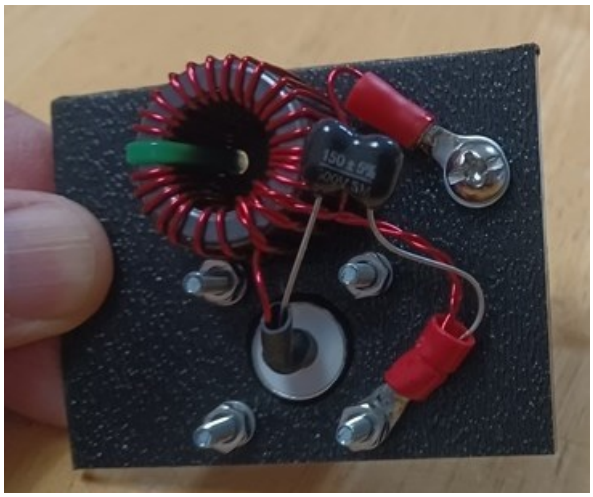
itor to a #4 stud ring terminal. Plug a PL-259 connector into the SO-239 bulkhead, for a heat sink. If you don't plug in a connector, soldering the cup in the rear of the bulkhead can get hot enough to melt the bulkhead dielectric, especially if you're using a low-wattage (under 60 watts) soldering iron. Solder the other end of the short magnet wire and the other leg of the same capacitor to the center solder cup of the SO-239 bulkhead connector. Bolt the #4 stud ring terminal to one of the M3-0.5 screws of the bulkhead.

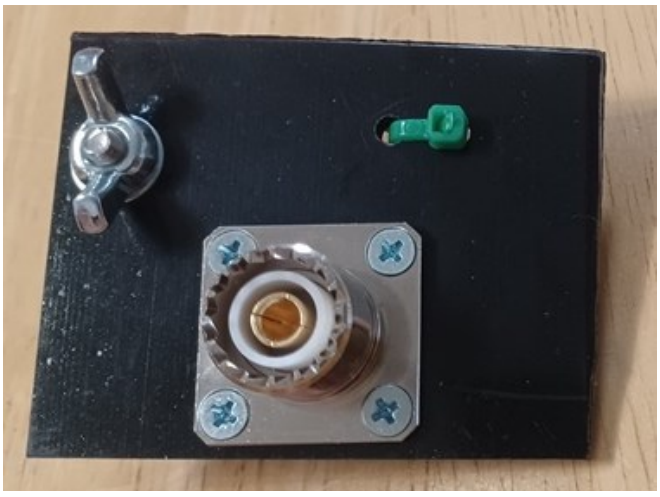






Drill a 3/16″ hole near one end of the ABS sheet, and insert a #8 screw, washer, and wing nut. Solder the remaining end of the long magnet wire to a #8 stud ring terminal, and install the ring terminal onto the #8 screw. Secure the coil onto the ABS sheet with a zip tie, if you'd like, and the unun construction is complete.





Trap assembly

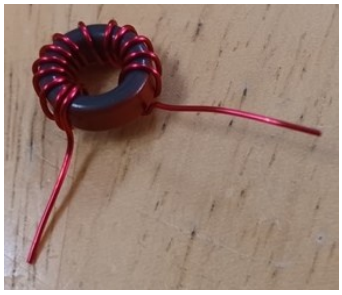
Cut a 2″ × 2″ piece of the ABS sheet for the ***20-meter trap*** foundation, and drill two 3/16″ holes in the sheet. Cut a 10-inch length of the 22 AWG magnet wire and tightly wrap ***13 turns***

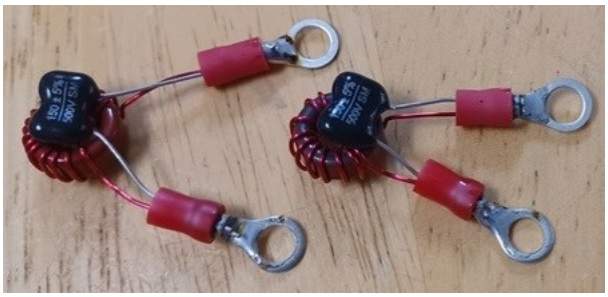
DIY, continued

20-30-40 end-fed SOTA antenna

of the wire evenly around a T50-2 toroid. Sand the wire ends and solder each end to a leg of a 150 pF capacitor and a #8 stud ring terminal. Install the ring terminals to the ABS sheet using the #8 hardware. Secure the coil onto the ABS sheet with a zip tie, if you like.

Cut a 2″ × 2″ piece of the ABS sheet for the ***30-meter trap*** foundation, and drill two 3/16″ holes in the sheet. Cut a 13-inch length of the 22 AWG magnet wire and tightly wrap ***18 turns*** of the wire evenly around a T50-2 toroid. Sand the wire ends and solder each end to a leg of a 150 pF capacitor and a #8 stud ring terminal. Install the ring terminals to the ABS sheet using the #8 hardware. Secure the coil onto the ABS sheet with a zip tie, if you like.





Wire element assembly

Rip the entire length of the 18 AWG speaker wire in two. Cut three lengths of the speaker wire as **31 feet 2 inches**, **11 feet 4 inches**, and **13 feet 5 inches**. Strip all the wires. Optionally, drill strain relief holes in the ABS. Terminate both ends of the first two by soldering them to #8 stud ring terminals. Terminate only one end of the 13-foot-5-inch wire with a ring terminal. Tie the other end onto a dogbone insulator.


Attach the ring terminal of one end of the 31-foot-2-inch wire to the unun, and the other end of the wire to one end of the 20-meter trap. Attach one end of the 11-foot-4-inch wire to the other end of the 20-meter trap, and the other end of the wire to one end of the 30-meter trap. Attach the ring terminal of the 13-foot-5-inch wire to the other end of the 30-meter trap, and the antenna construction is complete.

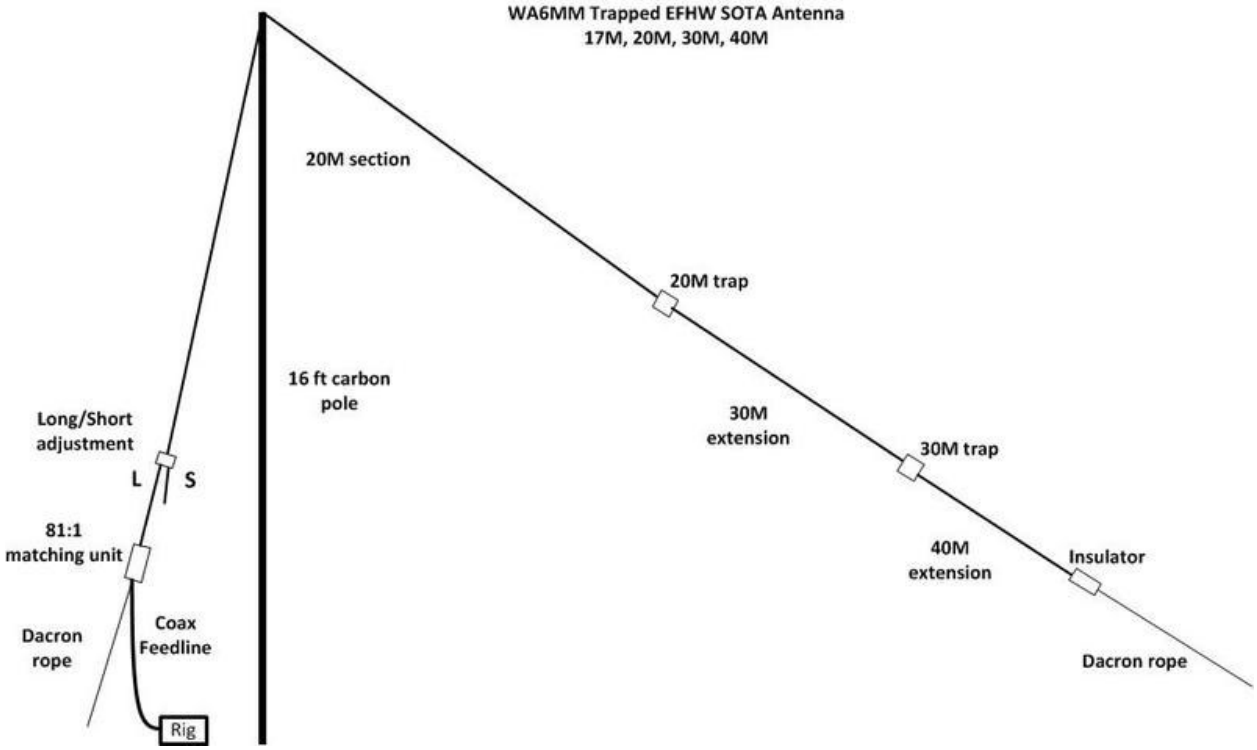
DIY, continued

20-30-40 end-fed SOTA antenna

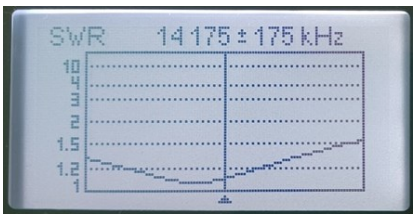
Testing the antenna

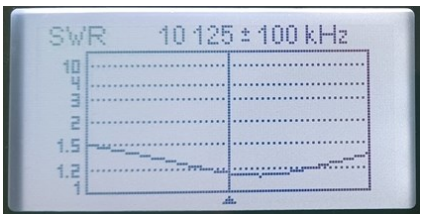
Attach the end of the fiberglass pole to the 31-foot-2-inch wire loosely, to allow the antenna element plenty of play for height adjustment. Attach two 25-foot lengths of nylon string to two rubber garden hose washers and slip the washer pair over the fiberglass pole about 13-ish feet up from the bottom for guy wires. Extend the fiberglass pole all the way, and secure the two nylon guy wires to some immobile items, like rocks or bricks. Attach some paracord to the unused end of the dogbone insulator and to the end of the unun opposite the wire.

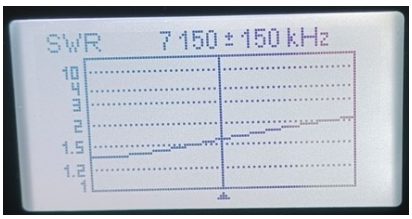
The following illustration shows how the antenna installation should roughly appear when it's ready for operation (I chose not to use the long / short adjustment shown):



Here are some SWR measurements with the antenna fully installed as it should be, and away from any conductive objects, except the dirt:







DIY, continued

20-30-40 end-fed SOTA antenna

As you can see, the antenna tunes up well on 20, 30 and 40 meters. The above drawing also shows its ability to handle 17 meters, but it was out of range for the internal tuner of my rig.

Summary

The 20-30-40 SOTA antenna is lightweight, portable, and fairly easy to build and set up. The two traps make it a three-band antenna. A ground connection is not necessary for performance. The 81:1 unun helps match the wire to the feed line, but also helps mitigate the common-mode current that's created from the lack of counterpoise.

Noji Ratzlaff, KNØJI (kn0ji@arrl.net)

Living in the Past

Historical perspective

Inventor of the vacuum tube

In 1904, while working for the Marconi Company in an effort to improve trans-Atlantic radio reception, the British physicist John Ambrose Fleming invented the thermionic vacuum tube. At the time, the device was named the Fleming valve, the word "valve" meaning "vacuum tube" in the UK.

In February 1880, Thomas Edison was investigating the reason for lamp filament breakage and the uneven blackening of his filament terminals. After some experimentation, he discovered that current flowed in one direction, from the filament to the measurement electrode, but not in the other direction. This effect, known as thermionic emission and originally discovered in 1853 by Edmond Becquerel, became known as the *Edison Effect*. Edison himself found little practical use for the effect.

John Fleming discovered that the Edison Effect could be used to detect radio signals. In 1904, he fashioned his own vacuum bulb such that current could only flow in one direction, and called it a ***diode***, because it contained two electrodes, an *anode* and a *cathode*. And because of this unidirectional flow, the British called the device the Fleming valve, for which Fleming applied for, and received a patent. Thus was born the practical vacuum tube, which revolutionized the technology for the first half of the 20th Century. It's believed that the invention of the vacuum tube by John Ambrose Fleming, ushered in the age of electronics.

Later, American engineer Lee de Forest improved on the Fleming valve and invented the triode audion, which again revolutionized electronics and allowed for long-distance telephone, radio communication, and radar. Fleming sued de Forest for infringing on his patent rights, but in 1943, the US Supreme Court not only ruled in de Forest's favor, but actually ruled Fleming's patent invalid.

Still, because the Fleming valve was able to rectify (make positive) AC power into DC power, especially at high voltages, it was used in X-ray machines, TV sets, and amplifiers until the 1970s. Because of his contribution to technology, John Ambrose Fleming was knighted in 1929. In 1933 he was awarded the IEEE Medal of Honor, its highest award, for "the conspicuous part he played in introducing physical and engineering principles into the radio art."

Side of Bacon

A little ham humor

Skip Johnson
Top Contributor · Just now ·

I'm posting this with a heavy heart.
As much as I love ham radio, collecting gear, building things, trying new things, and everything else that comes with it ... it is just taking up too much of my time. I am struggling to keep up with the everyday basics of cleaning and maintaining my home, so something has to give.
I have decided to get rid of my gear.
Below is a list of what's available.
Serious inquiries only and please don't insult me with low offers, I know the value of what I have here.
Thanks for reading and understanding ...
1. Vacuum cleaner
2. Dustpan and brush
3. Mop and bucket
4. Lawn Mower
5. Leaf blower
6. Laundry detergent
7. Iron
8. Broom
9. Duster

Like Comment Share

For Your Insight

Information you could use

Club meeting format

Here's the usual agenda for club meetings, at the Orem City Council Chamber Room, 56 N State St:

Talk-in frequency on the club repeaters

6:30 pm : Eyeball QSO

socialize / put faces with call signs

radio programmers available to help you

6:45 pm : Call the meeting to order

meeting lineup (agenda)

announcements / calendar / new hams

7:00 pm : Discussion / presentation

7:45 pm : Door prizes

7:55 pm : Dismiss and disassemble

8:00 pm : *Club QSY* to a local eatery

Something you'd like to see at the meetings?

Thanks to Heath Stevenson for making our monthly meetings possible!

Monthly meeting help

We're grateful for the volunteers who help with various tasks that make our club night just that much more friendly and useful to everybody. Monthly, we need help with

programming radios (thanks, Loren / Ralph!)

taking photos or videos during the meeting (thanks, Joe!)

operating the talk-in radio

setting up tables and chairs (thanks, Heath!)

Lynx

Websites for your education and leisure

Ham Radio Equipment
Ham Radio Nets
Radio Programming
Net Training Topics
76ers Group and UVARC Group FB pages
New Ham Page
Ham Radio Knowledge Articles

Send your input to ***uvarcshack@gmail.com***

Test your knowledge

General and Extra review (answers next page)

G1D1Ø : What is the minimum age that one must be to qualify as an accredited Volunteer Examiner?

A. 12 years
B. 18 years
C. 21 years
D. There is no age limit

E4CØ3 : What is the term for the suppression in an FM receiver of one signal by another stronger signal on the same frequency?

A. Desensitization
B. Cross-modulation interference
C. Capture effect
D. Frequency discrimination

Calendar

What's happening
(times are Mountain Time)

Provo Ham Exam Sessions

BYU J. Reuben Clark Law School building

Sign up at HamStudy.org/sessions/nv7v

Sat 17 Feb, 2:30 to 5:00 pm
Wed 21 Feb, 7:00 to 8:00 pm
Sat 16 Mar, 2:30 to 5:00 pm
Wed 20 Mar, 7:00 to 8:00 pm
Wed 17 Apr, 7:00 to 8:00 pm

*Email **uvhamtest@gmail.com** for info*

Provo One-day Technician Courses*

Third Saturday Monthly at 8:00 am

Provo Fire Station #2, 2737 N Canyon Rd

** September through April*

2024 Orem Ham Radio Courses

Sign up at psclass.orem.org

General : Mar 19, 26, Apr 2, 9
Extra: Jul 16, 23, 30, Aug 6, 13
Technician : Sep 17, 24, Oct 1, 8

Club Meeting Calendar (6:30 pm)

On YouTube Live, and Facebook Live

February 1	March 7
April 4	May 2
June 6	July 18 †

† Ham Radio Fair, Pheasant Brook Park

** At the Orem Friendship Center*

Regular Nets

UVARC Family Net, Sun 3:30 pm, 146.780
NE UC ERC Net, 1st Sun 9 pm, 147.540 (s)
Health & Fitness Net, Mon 7 pm, 146.780
UVARC Ladies' Net, Tue 7 pm, 146.780
DMR Utah Net, Wed 6 pm, TG 3149, CC 1
Utah 76ers, Wed 7 pm, 146.760
UVARC HF Net, Wed 9 pm, 28.345 / 7.220
UVARC New Ham Net, Thu 7 pm, 146.780
CERT Ham Net, 2nd, 4th Thu 8:pm, 146.780
Utah County 6-meter Net, Fri 8 pm, 50.140
Family History Net, Sat 8 pm, 146.780
See a larger list of nets at noji.com/nets

Upcoming Contests

State QSO Parties
Feb 3 : VT, MN, BC
State QSO Parties
Feb 24 : NC

ARRL International DX Contest (SSB)
5 pm Fri Mar 1 to 5 pm Sun Mar 3
CQ Worldwide WPX Contest (SSB)
6 pm Fri Mar 29 to 6 pm Sat Mar 31
See a larger list at contestcalendar.com

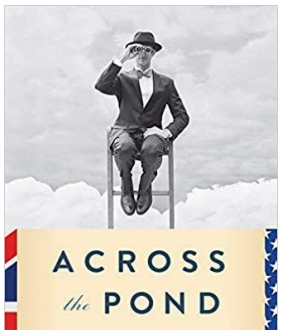
Answers to *Test your knowledge*

G1D1Ø : **B** (18 years)

E4CØ3 : **C** (Capture effect)

Across the Pond

That is, the Utah Lake 'pond'



Eagle Mountain ham radio activities

A list of amateur radio activities near Eagle Mountain, organized primarily by Dave Becar KI6OSS. Unless otherwise noted, all these activities will be held at the **Eagle Mountain City Hall**, 1650 Stagecoach Run. Please contact Dave at **ki6oss6365@gmail.com** to register for any of the classes or exams, for any additional information, or questions in general.

February 2024 Technician Course

Thu 01 February, 7 to 9 pm
Thu 08 February, 7 to 9 pm
Thu 15 February, 7 to 9 pm
Thu 22 February, 7 to 9 pm
Thu 29 February, 7 to 9 pm

Ham Radio Exam Session

Sat 02 March 10 am
Open to all, for any license class

April 2024 General Course

Thu 04 April, 7 to 9 pm
Thu 11 April, 7 to 9 pm
Thu 18 April, 7 to 9 pm
Thu 25 April, 7 to 9 pm
Thu 02 May, 7 to 9 pm

Ham Radio Exam Session

Sat 04 May 10 am
Open to all, for any license class

May / June 2024 Technician Course

Thu 23 May, 7 to 9 pm
Thu 30 May, 7 to 9 pm
Thu 06 June, 7 to 9 pm
Thu 13 June, 7 to 9 pm
Thu 20 June, 7 to 9 pm

Ham Radio Exam Session

Sat 22 June, 10 am
Open to all, for any license class

September 2024 Technician Course

Thu 29 August, 7 to 9 pm
Thu 05 September, 7 to 9 pm
Thu 12 September, 7 to 9 pm
Thu 19 September, 7 to 9 pm
Thu 26 September, 7 to 9 pm

Ham Radio Exam Sessions

Sat 21 September, 10 am (Swap Meet)
Sat 28 September, 10 am
Open to all, for any license class

Ham Radio Nets

Eagle Mountain ECT Net
Sundays, 9 pm 147.220+ MHz (151.4 Hz)

Eagle Mountain Chimney Rock Stake
Sundays 8:30 pm 446.500 (s)

Eagle Mountain Central Stake
Saturday 8 pm 145.650 (s)

Vendors

For your convenience

Pockrus Joystick J-pole

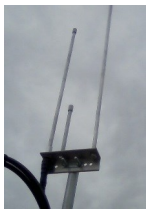
$30, open-stub aluminum half-wave, dual-band J-pole antenna

$40, 6-meter dipole, $20 for the 220 MHz (1.25 m) antenna

by Carl Pockrus, WE7OMG (email omgantennas@gmail.com to order)

Half-wave performance, solid construction, weather-proof, low wind-load

Probably the best-performing outdoor antenna you can get for the price



Super-Elastic Signal Stick

$20, vertical quarter-wave flexible antenna

by Richard Bateman, KD7BBC, of *SignalStuff* (and maker of *HamStudy*)

Super-performing antenna for your HT (handhold transceiver)

Visit SignalStuff and select SMA-Male, SMA-Female, or BNC

Ham Radio Podcasts v1.50

by Trevor Holyoak, AG7GX (email android@holyoak.com)

Stream podcasts (such as *100 Watts and a Wire*, *Amateur Radio Newsline*, *ARRL Audio News*, etc.) or download for later listening

For Android 4.1 and up (ad-free available for purchase)

Club Logo and Call Sign Embroidering

Want your call sign or name (or both!) embroidered on your shirt, your hoodie, your duffle? Or how about a club patch with your call sign?

by Glenna Gardner, WE7SEW (glenna0354@gmail.com or text 801-592-2503)

Call sign or name = $5, Both = $8, UVARC patch = $5, Patch with call = $9

Portable Aluminum J-pole

$60, sectioned, open-stub aluminum half-wave, dual-band J-pole antenna

by Stan, KJ7BDV and Kent, N7EKF (email skantenna@yahoo.com for info or call 801-372-7260)

Complete antenna breaks down into a compact 2″ x 6″ x 12″ package weighing only 3 lbs, perfect for backpacking and portable work where you really need a good 2-meter antenna

HamBadgers

Amateur radio name badges and other products

$10, official UVARC ham radio name badge with the club logo

Visit Ham Badgers and select Ham Radio Clubs > Utah Valley Amateur Radio Club

Email Eric Palmatier at hambadgers@gmail.com or call 919-249-8704

Where everybody knows your call sign

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448.200–, 100.0 224.560–, 100.0
145.250–, 100.0 448.225–, 100.0
Newsletter input?
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We are the *Utah Valley Amateur Radio Club*, a 501(c)(3) non-profit (EIN 81-360-6416) Utah corporation that was organized in an obscure Orem fire station on 02-05-2016 to provide amateur radio enthusiasts in Utah County and surrounding areas a way to gather and discuss all things ham. Our primary purposes are to provide a local amateur radio resource, help new hams in their new-found adventures, and to give more experienced hams a reason to share their wealth of knowledge and wisdom in a friendly atmosphere of fellowship. We're an ARRL Affiliate and work in cooperation with the Utah VHF Society, but are not subsidiary to them, to ARRL, ARES, or any other organization, although many of our members and leaders might also belong to the same.

This newsletter is copyrighted and published by the Utah Valley Amateur Radio Club, and its purpose is to convey the tone and temperament of the club, to inform and entertain its members, and to entice the rest. To join, go to uvarc.club/join, then sign up at www.facebook.com/groups/uvarc/ to stay informed. For more information about our club or about amateur (ham) radio in general, please email or text or call us.

More than just a club, we invite you to become part of a great ham radio movement in Utah Valley

Our fearless leadership

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From all of us to you, 73